REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

The Examiner rejects claims 1-14 under 35 U.S.C. §103(a) as being unpatentable over US 2003/0058833 (referred to as Hashem) in view of US 2003/0174675 (referred to as Willenegger). This rejection is respectfully traversed.

The subject matter in claims 1-14 addresses the issue of aligning transmission time intervals (TTIs) of physical radio channels in the uplink and downlink directions of a bidirectional radio communication system like a WCDMA system. In a WCDMA system, TTI alignment is needed to synchronize the uplink frame structure with the downlink frame structure in order to achieve satisfactory power control over the downlink transmissions. See pages 2 and 3 of the specification as filed. The inventors recognized that the response processing time at the User Equipment (UE) makes a significant contribution to the Round Trip Time (RTT) of the system. The response processing delay is described on page 4, lines 10 to 12 as the approximate delay, following receipt of data at the user terminal on a downlink physical channel, and having response data ready to send over an uplink physical channel, which also provides support for example for newly-added dependent claims 15-18. The TTI alignment is performed faster by measuring or estimating a response processing delay at the user terminal, and delaying the TTI of an uplink physical channel with respect to a corresponding downlink physical channel or channels by an amount dependent upon the response processing delay measurement or estimate.

Hashem's goal is to reduce signal interference in a mobile environment. The Examiner suggests that paragraph [0005] of Hashem discloses measuring or estimating the response processing delay at a user terminal, as recited in claim 1. Paragraph [0005] does not disclose measuring or estimating the response processing delay at a user terminal, but rather discloses

determining an initial round trip propagation delay between the base station and a user terminal. That round trip propagation delay can be affected by the quality of the radio link between the base station and the user terminal. Hashem determines the round trip propagation delay in order to synchronize transmission timing for reducing interference.

In contrast with synchronizing transmission timing in order to reduce interference, claim 1 is concerned with reducing the Round Trip Time (RTT) of the system. Simply making a measurement of the RTT, as described in Hashem, does not assist in reducing the RTT. The inventors in this application realized that making a measurement for estimating the response processing delay at a user terminal, and delaying the transmission time interval (TTI) of an uplink physical channel with respect to a corresponding downlink physical channel by an amount dependent upon the measurement or estimate can reduce the round trip time in the bidirectional radio communication system by introducing a variable TTI alignment between the downlink and uplink directions. This reduced roundtrip time leads to higher throughput, particularly in packet data services such as TCP connections.

The Examiner appreciates that Hashem does not disclose aligning TTIs of physical channels in the uplink and the downlink directions. Like Hashem, Willeneger focuses on a different issue--reducing interference in a wireless communication system. Neither reference teaches "delaying the transmission time intervals of an uplink physical channel with respect to a corresponding downlink physical channel or channels by an amount dependent upon the measurement or estimate [of the response processing delay at a user terminal]." All that Willeneger teaches at paragraph [0126] is that the downlink synchronization (SCH) time intervals are known after the terminal successfully acquires slot timing. The Examiner does not explain how the SCH time intervals are transmission time intervals since they are used for

conveying synchronization information and not for transmission. Nor are the SCH time intervals association with an uplink channel (the SCH is downlink channel), let alone transmission on an uplink channel. Moreover, the SCH channel does not depend on the measurement or estimate of a response processing delay at a user terminal. Still further, neither reference teaches the particular response processing delay defined in dependent claim 18.

Claim 11 recites a user terminal that includes "means for delaying the transmission time intervals of an uplink physical channel with respect to those of a corresponding downlink physical channel or channels by an amount dependent upon a measurement or estimate of the response processing delay of the terminal." This feature is not disclosed in either of Hashem or Willeneger. Further, neither reference teaches the particular response processing delay defined in dependent claim 17.

Claim 13 recites a Radio Network Controller (RNC) for use in a Radio Access Network (RAN) of a WCDMA system. The RNC includes "means for processing uplink physical channels taking into account delays relative to the corresponding downlink physical channels in the TTI intervals introduced by the sending user terminal based on respective measures or estimates of the user terminal processing powers." This feature is not disclosed in either of Hashem or Willeneger. Further, neither reference teaches the particular response processing delay defined in dependent claim 16.

Claim 14 describes a method of controlling broadcast power levels at a node of a bidirectional communication system. The method relies on delaying the power control signals with respect to a downlink signal by an amount dependent upon the response processing delay at a peer node. Neither Hashem nor Willeneger teach this feature. Further, neither reference teaches the particular response processing delay defined in dependent claim 15.

The application is in condition for allowance, an early notice to that effect is earnestly solicited.

Respectfully submitted,

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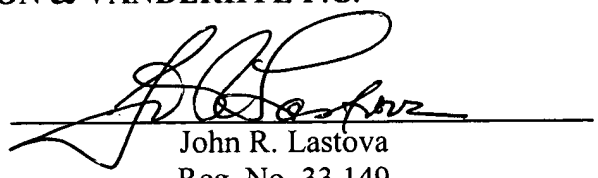
By: 
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